EWTEC 2021 – ETIP and NEMMO Side Event

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wave energy SCOTLAND

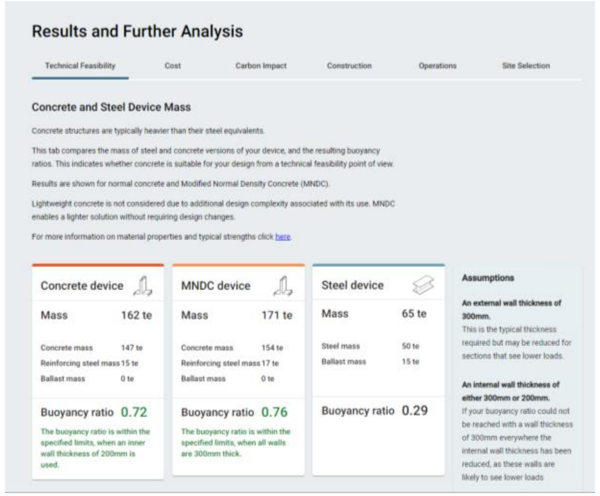
HIE
Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean

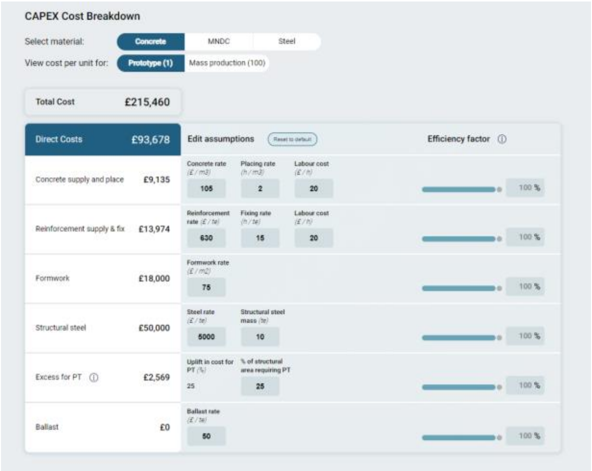
WES Programme

- Comprehensive understanding and mitigation of challenges
- Engineering design application to a WEC prime mover
- Manufacturing and assembly requirements/constraints
- Recognise wave (and other) market opportunities for the material application
- Production of design decision tools to allow developers to material applicability
- Plan for dissemination of Stage 3 outputs and outcomes

Online Design Tools

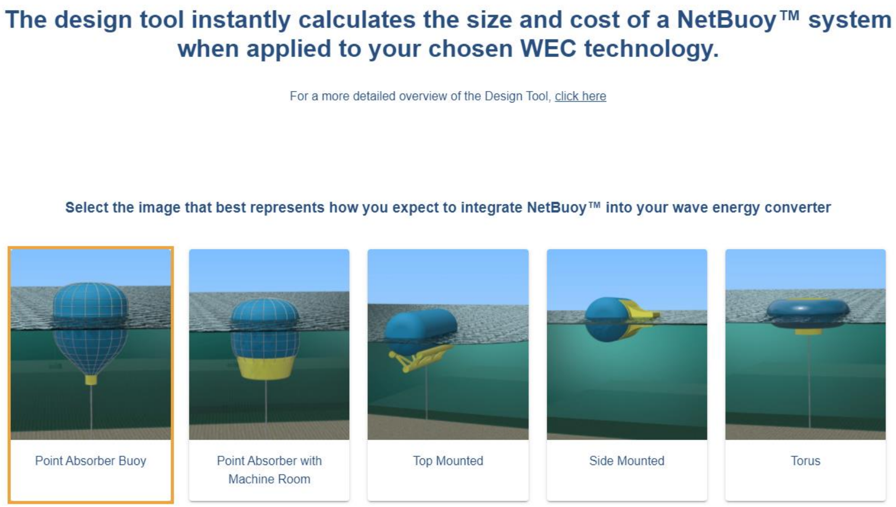
- Concrete – CONVEX, ARUP
  - Use of concrete on buoyant point absorber type-WECs
  - https://convex.ade.arup.com/landing-page
  - Technical feasibility – concrete/steel data
  - Cost – cost comparison with steel equivalent
  - Carbon impact – emissions breakdown of production
  - Construction – relevant techniques for WECs
  - Operations – launch, towing and maintenance
  - Scottish supply chain map – GIS map of ports and suppliers,





Online Design Tools

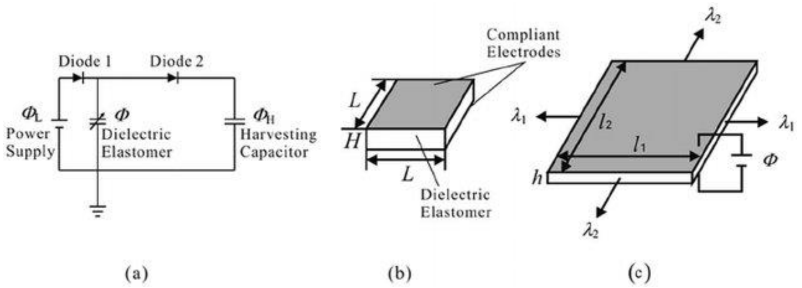
- NetBuoy - TTI
  - Size of buoyant pod required for 5x geometry types
  - https://www.netbuoy.co.uk/design-tool
  - Estimate of:
    - Mass (buoy and net)
    - Displacement
    - Overall cost



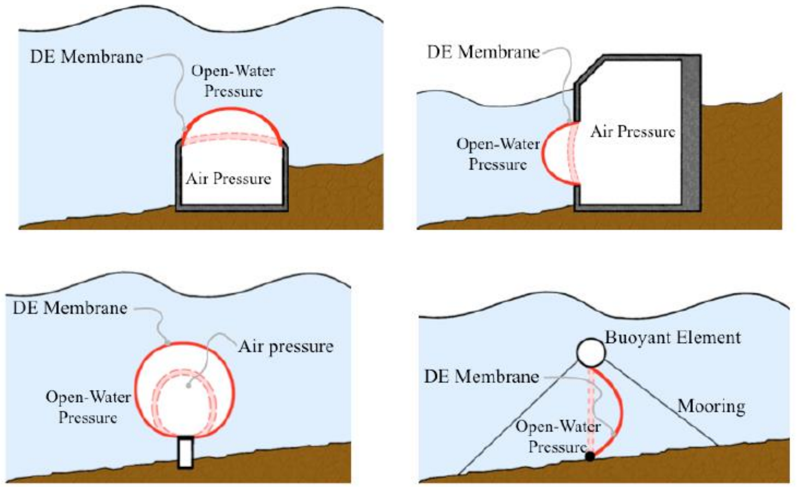
  - Includes further information and detail about the development programme completed

Flexible/Electroactive Materials

- 2018: WES Landscaping on Alternative Generation Technologies
- Electro-active polymers (EAPs)



- Challenges remain for design and implementation
  - Limited experience at practical design scales
  - What is achievable? What are limitations?
  - What are system requirements?
  - How to increase power density?
  - How to manufacture at scale?



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